

V. *An Account of the Proportions of the English and French Measures and Weights, from the Standards of the same, kept at the ROYAL SOCIETY.*

Read Nov. 11.
1742.

SOME curious Gentlemen both of the ROYAL SOCIETY of *London*, and of the ROYAL ACADEMY of SCIENCES at *Paris*, thinking it might be of good Use, for the better comparing together the Success of Experiments made in *England* and in *France*, proposed some time since, that accurate Standards of the Measures and Weights of both Nations, carefully examined, and made to agree with each other, might be laid up and preserved in the Archives both of the ROYAL SOCIETY here, and of the ROYAL ACADEMY of SCIENCES at *Paris*: Which Proposal having been received with the general Approbation of both those Bodies, they were thereupon pleased to give the necessary Directions for the bringing the same into Effect. In consequence of which, Mr. *George Graham*, Fellow of the ROYAL SOCIETY, did, at their Desire, procure from Mr. *Jonathan Sisson*, Instrument-maker in *Beaufort-Buildings*, Two substantial brass Rods, well planed and squared, and of the Length of about 42 Inches each, together with Two excellent brass Scales of Six Inches each, on both of which one Inch is curiously divided by diagonal Lines, and fine Points, into 500 equal Parts: And upon each of the Rods Mr. *Graham* did, with the greatest Care, lay off the Length of Three *English* Feet, from the Standard of a Yard kept in the
Tower

Tower of London. He also at the same time directed Mr. *Samuel Read*, Scale and Weight-maker near *Aldersgate*, to prepare, in the best manner he could, Two single *Troy* Pound Weights, with Two Piles of the same Weights, decreasing from Eight Ounces to One Quarter of an Ounce respectively, Two Parcels of the lesser corresponding Weights, that is to say, from Five Penny-weight to half a Penny-weight, and Grain Weights from Six Grains to One-fourth of a Grain ; together with Two single *Avoirdupois* Pound Weights : All which, when made, were carefully examined, and found to agree sufficiently with each other. Things being thus provided, the Two brass Rods, one of the Six-inch Scales, and one Set of all the Weights, were sent over to *Paris*, one of the Rods to be returned, and all the other Particulars, to be presented for their Use, to the ROYAL ACADEMY of SCIENCES there : Who, upon Receipt thereof, desired the late *Monsieur Du Fay*, and *Abbé Nollet*, both Members of the ACADEMY, and also Fellows of the ROYAL SOCIETY, to see the Measure of the *Paris* Half-toise, containing Three *Paris* Feet, accurately set off upon both the brass Rods, in the like manner as the Length of the *English* Yard, containing three *English* Feet, had already been set off on the same : After which those Gentlemen returned over one of the Rods to the ROYAL SOCIETY, together with a Standard Weight of Two Marcs, or Sixteen *Paris* Ounces, accompanied with a *Process Verbal*, or Authentic Certificate from the proper Office, of the due Examination thereof.

The Rod being returned, Mr. *Graham* caused Mr. *Sisson* to divide both the Measure of the *English* Yard, and the *Paris* Half-toise, each into Three equal Parts,
for

for the more ready taking off both the *English* and *Paris* Foot from the same: After which, both this Rod and the Two *Marc* Weight sent over from *France*, were, together with the other Particulars before-mentioned, carefully laid up in the Archives of the ROYAL SOCIETY, where they now remain, as their Duplicates do in those of the ROYAL ACADEMY of SCIENCES at *Paris*: But as, before they were so laid up, an accurate Examination and Comparison of them was made by Direction of the Council of the ROYAL SOCIETY, the Result of the same is here subjoined as follows: That is to say,

1. The *Paris* half Toise, as set off on the Standard in the ROYAL SOCIETY, contains *English* Inches by the same Standard 38.355. Whence it appears, that the *English* Yard and Foot is to the *Paris* half Toise and Foot, nearly as 107 to 114. For as 107 to 114, so is 36 to 38.35514.

2. The *Paris* Two *Marc*, or 16 Ounce Weight, weighs *English* Troy Grains 7560. Whence it appears, that the *English* Troy Pound of Twelve Ounces or 5760 Grains, is to the *Paris* Two *Marc* or 16 Ounce Weight, as 16 to 21: That the *Paris* Ounce weighs *English* Troy Grains 472.5, and that consequently the *English* Troy Ounce is to the *Paris* Ounce, as 64 is to 63.

3. The *English* Avoirdupois Pound weighs Troy Grains 7004, whence the Avoirdupois Ounce, whereof 16 make a Pound, is found equal to 437.75 Troy Grains: And it follows of consequence, that the Troy Pound is to the Avoirdupois Pound, as 88 to 107 nearly; for as 88 to 107, so is 5760 to 7003.636; that the Troy Ounce is to the Avoirdupois Ounce, as

80 to 73 nearly; for as 80 to 73, so is 480 to 438; and lastly, that the *Avoirdupois* Pound and Ounce is to the *Paris* Two *Marc* Weight and Ounce, as 63 to 68 nearly; for as 63 to 68, so is 7004 to 7559.873.

4. The *Paris* Foot, expressed in Decimals, is equal to 1.0654 of the *English* Foot, or contains 12.785 *English* Inches.

VI. *A Method of making a Gold-colour'd Glazing for Earthen-Ware; communicated, in Latin, in a Letter from M. Godofridus Heinſius, Aſtron. Prof. at St. Petersburg, to Mr. Peter Collinſon, F. R. S.*

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TAKE of Litharge parts iij. of Sand or calcined Flint p. i. pound and mix these very well together, then run them into a yellow Glass with a strong Fire. Pound this Glass, and grind it into a subtile Powder, which moisten with a well saturated Solution of Silver, make it into a Paste, which put into a Crucible, and cover it with a Cover. Give at first a gentle Degree of Fire, then increase it, and continue it till you have a Glass, which will be green. Pound this Glass again, and grind it to a fine Powder; moisten this Powder with some Beer, so that by means of an Hair Pencil you may apply it upon the Vessels, [or any Piece of Earthen-ware]. The Vessels that are painted or cover'd over with this Glazing, must be first well heated, then put under a Muffle, and as soon as the Glass runs, you must * smook them, and take out the Vessels.

* *Afflare, debes fumum.*